ABSTRACT OF THE INVENTION

The present invention provides a composition comprising a saturated solution of zinc oxide in an aqueous sodium or potassium hydroxide solution wherein the concentrations of the zinc oxide and the sodium hydroxide in said solution are as set forth in Figure 1, and the concentrations of the zinc oxide and potassium hydroxide are as set forth in Figure 2.The present invention also provides a process for preparing a solution of zinc oxide in an aqueous base, said process comprising diluting a more concentrated solution of zinc oxide in aqueous sodium or potassium hydroxide to produce a resulting dilute solution of zinc oxide having a concentration of zinc oxide that is higher than that obtained by dissolving solid zinc oxide in aqueous sodium or potassium hydroxide, wherein the concentration of the aqueous sodium or potassium hydroxide used for dissolving the solid zinc oxide is substantially the same as the concentration of the aqueous sodium or potassium hydroxide in the resulting dilute solution of zinc oxide, and wherein the concentration of the aqueous sodium hydroxide in the resulting dilute solution ranges from 5 wt% NaOH to about 35 wt% NaOH, and the concentration of the aqueous potassium hydroxide in the resulting dilute solution ranges from 10 wt% KOH to about 55 wt% KOH. The present invention also provides a process for producing zinc metal comprising electrolyzing a basic solution of zinc oxide prepared by the aforementioned process.